PearTune MSO „max speed off“
User manual

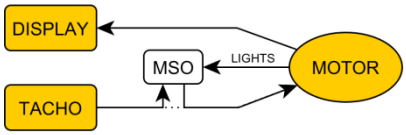
Market naming

"PearTune MSO-B1" for e-bikes with Bosch Active, Bosch Performance, variant 1
"PearTune MSO-B2" for e-bikes with Bosch Active, Bosch Performance, variant 2
"PearTune MSO-Y1" for e-bikes with Yamaha Syncdrive, variant 1
"PearTune MSO-Y2" for e-bikes with Yamaha Syncdrive, variant 2

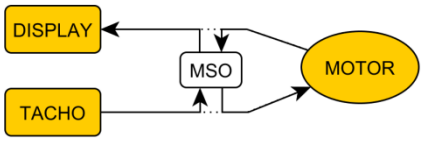
Functional description

PearTune MSO is a „tuning“ equipment (followed „MSO“) intended for shifting or removing the speed limiter of electric asisted bycicles with centerdrives Bosch Active, Bosch Performance or Yamaha Syncdrive. The MSO is not stand alone functional. It is connected into the e-bike drivetrain using original, compatible connectors, in between the motor unit and speed sensor unit, optionally in between the motor unit and display unit. Intallation should be carried out by a qualified personell only. The MSO does not need to be configured manually. The entire configuration and adaptation to the paticular e-bike is done automatically. Product is shipped in the following variants:

Variant MSO-B1 MSO-Y1: Product shifts the speed limit from 25 km/h to 50 km/h. The MSO is connected in between the magnetic speed sensor and the motor unit. MSO is powered from the front- or rear-light output connector. All readings like actual, average, maximum speed, trip distance and range are displayed in half regarding their current values. MSO can be activated or deactivated anytime during the ride by turning on or off the lights on both systems.



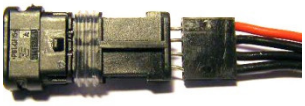
Variant MSO-B2 a MSO-Y2: Product removes the e-bike speed limit completely. The MSO is connected in between the magnetic speed sensor and the motor unit, and in between the display and the motor unit. MSO is powered from the display connector. All readings are correctly displayed (if there is not an exception stated within a given variant). The MSO can be activated or deactivated anytime during the ride by pressing one of the control keys on the display depending on the factory configuration. The device state is always continuously indicated by a certain element on the display, so the rider always know whether the device is active or not.



Installation

MSO-B1 a MSO-B2: remove the pedal arm using a proper equipment and the plastic cover of the centerdrive (using TORX screws) on the other side than the rosette plate is placed. All the needed cables and connectors are hidden under this cover.

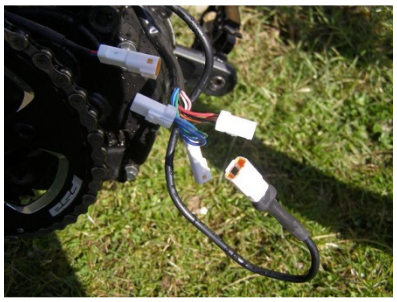
MSO-B1: disconnect the 2-position connector in between the speed sensor and the centerdrive unit and remove the cover from light connector socket. Light function must be enabled using the bosch diagnostic software. Connect both 2-position connectors (those with red, thin wires) on the MSO to the appropriate sockets (for light sensor and for tacho sensor) on the motor unit. Connect the original, previously disconnected tacho connector into the MSO according to the color coding (red wire side on the red wire side). To maintain the system waterproof, it is suitable to use the heat shrinkable tubing on the male MSO connector connected into the original connector from the tacho sensor. Place the MSO in a proper position and optionaly, fasten the wiring using the electrical ties. Re-attach the plastic cover and pedal arm and the bike is ready to go.



MSO-B2: disconnect the 4-position connector in between the display unit and motor unit aswell as the 2-position connector in between the tacho sensor and motor unit. Connect both appropriate connectors on the MSO instead of the original connectors into the the motor unit and, the original, previously disconnected connectors into the MSO according to the color coding (red wire side onto the red wire side). To maintain the system waterproof, it is suitable to use the heat shrinkable tubing on the both male MSO connectors connected into the original connectors from the tacho sensor and display unit. Place the MSO in a proper position and optionaly, fasten the wiring using the electrical ties. Re-attach the plastic cover and pedal arm and the bike is ready to go.

MSO-Y1 a MSO-Y2: remove the plastic cover under the centerdrive. There are three INBUS screw on the top. Loosen two of them (those which are closer to the front wheel) and tilt the motor unit towards the rear wheel. Cables and connectors are placed in the space between the motor and bike frame.

MSO-Y1: disconnect the 3-position connector in between the tacho sensor and motor unit and remove the sillicon cap from the 2-position light connector. Connect all three appropriate connectors on the MSO into the three, previously disconnected, mating connectors on the e-bike. All the conectors have a keying which prevents wrong connection, there is only one way all of them can be connected. Place the MSO in a proper position (we reccomend into the e-bike frame, if possible) and optionaly, fasten the wiring using the electrical ties. Fold back the motor and fasten the previously removed INBUS screws. Re-attach the plastic cover and the bike is ready to go.



MSO-Y2: disconnect the 4-position connector in between the display unit and motor unit and the 3-position connector in between the tacho sensor and the motor unit. Connect all four appropriate connectors on the MSO into the four, previously disconnected, mating connectors on the e-bike. All the conectors have a keying which prevents wrong connection, there is

only one way all of them can be connected. Place the MSO in a proper position (we reccomend into the e-bike frame, if possible) and optionaly, fasten the wiring using the electrical ties. Fold back the motor and fasten the previously removed INBUS screws. Re-attach the plastic cover and the bike is ready to go.

Usage

MSO-B1 and MSO-Y1: the MSO can be activated or deactivated anytime by turning on or off the lights using the appropriate button.

MSO-B2: the MSO can be activated or deactivated anytime by short-pressing the walk assist button (walk). This button original function remains unchanged with a long-press and the walk assist function can be used like before. MSO activity is indicated on the display by blinking the motor power indicator each 5 seconds. The device is fully functional with both Intuvia and Nyon displays.

MSO-Y2: the MSO can be activated or deactivated anytime by short-pressing the lights button. This button original function remains unchanged. MSO activity is indicated on the display by blinking the chosen assist level indicator.

Note for MSO-B2 and MSO-Y2: It is possible that, during a long ride at the speeds over 25km/h with motor assist, some readings on the display may not immediately respond to their true values. After a certain amount of time without motor assist or at speeds below the 25km/h these values should always get corrected. After a long trip at higher speeds, we recommend not to turn off the e bike imediatelly. The easiest way is to let the e-bike switch off itself automatically.

Macufacturer

PearControl s.r.o.
Ke Křížku 340
394 03 Horní Cerekev
Vysočina, CZ

Technical parameters

Dimension without wiring: 21 x 40 x 12mm
Supply voltage range: 5 - 15 V
Maximum current consumption: 100 mA
Maximum power usage: 1.5W
Mass: cca. 30g
The voltage does not exceed 50 V anywhere inside the device.

Legislation

The manufacturer reserves the right to make changes. This manual is an integral part of the equipment sold. By using the equipment PearTune MSO its user agrees that he will use the modified e bike in accordance with the applicable legislation of the target country and so does even off-road; therefore, he is free to use it only on his own land or on land designated for that purpose. The user also acknowledges that the operation of bicycles outside their own land or land designated for this purpose with deactivated, but installed equipment PearTune MSO may not be in compliance with legislation. The manufacturer does not warrant non-infringement of bicycle warranties or impossibility of damage or blockage of the e-bike system. The manufacturer disclaims liability for any damages, whether in health or property associated with installing or using this product.

The manufacturer holds the certificate of electromagnetic compatibility testing - Compliance with EU regulations (CE marking) aswell as the certificate of restriction of the use of Hazardous Substances (RoHS label).